

Atty Docket No.: 702.107.2

In the Claims:

1. (Previously Presented) A process for producing a rigid reticulated article, comprising:
- (a) providing a first dispersion of a ceramic or metal powder, a binder, and a solvent;
  - (b) providing a reticulated substrate which has open, interconnected porosity;
  - (c) contacting the reticulated substrate with the first dispersion to coat the substrate with the dispersion to form a first coating;
  - (d) drying the coated reticulated substrate;
  - (e) contacting the coated reticulated substrate with one or more additional dispersions of a ceramic or metal powder, a binder, and a solvent, in succession, to form one or more additional coatings wherein each additional dispersion has a viscosity less than the viscosity of all preceding dispersions;
  - (f) drying the one or more additional coatings between the steps of contacting;
  - (g) heating the coated reticulated substrate at a time and temperature sufficient to pyrolyze any organic components; and
  - (h) sintering the coated reticulated substrate to form a ceramic or metal or composite reticulated article.

2. (Previously Presented) A process according to claim 1, wherein after drying the first coating and the one or more additional coatings form an insoluble, flexible film which can be subsequently deformed without substantially cracking off, flaking off or

Atty Docket No.: 702.107.2

peeling off of the substrate.

3. (Original) A process according to claim 1, wherein the substrate is compliant.

4. (Original) A process according to claim 1, wherein the substrate is wettable.

5. (Original) A process according to claim 1, wherein the pores of the rigid reticulated article are substantially fully open and interconnected.

6. (Previously Presented) A process according to claim 1, wherein up to six additional dispersions are provided to form up to six additional coatings.

7. (Previously Presented) A process according to claim 12, wherein a successive dispersion has a lower viscosity than a preceding dispersion.

8. (Previously Presented) A process according to claim 12, wherein a successive dispersion has the same viscosity as a preceding dispersion.

9. (Previously Presented) A process according to claim 7, wherein each dispersion has a lower viscosity than the preceding [dispersion] dispersions.

10. (Original) A process according to claim 6, wherein the viscosity of the first dispersion is from 200-2500 cP.

11. (Previously Presented) A process for producing a rigid reticulated article, comprising:

(a) providing a first dispersion of a ceramic or metal powder, a binder, and a solvent;

(b) providing a reticulated substrate which has open, interconnected porosity;

Atty Docket No.: 702.107.2

- (c) contacting the reticulated substrate with the first dispersion to coat the substrate with the dispersion to form a first coating;
- (d) drying the coated reticulated substrate;
- (e) contacting the reticulated substrate with one or more additional dispersions of a ceramic or metal powder, a binder, and a solvent to form one or more additional coatings;
- (f) drying the additional coating between the steps of contacting;
- (g) heating the coated reticulated substrate at a time and temperature sufficient to pyrolyze any organic components; and
- (h) sintering the coated reticulated substrate to form a ceramic or metal or composite reticulated article, wherein up to six additional coatings are provided, the viscosity of the first dispersion is from 200-2500 cP, the viscosity of the dispersion of the first additional coating is from 100-1500 cP, the viscosity of the dispersion of the second additional coating is from 50-800 cP, and the viscosity of the dispersion of the third additional coating is 200 cP or less.

12. (Amended) A process for producing a rigid reticulated article, comprising:

- (a) providing a first dispersion of a ceramic or metal powder, a binder, and a solvent;
- (b) providing a reticulated substrate which has open, interconnected porosity;
- (c) contacting the reticulated substrate with the first dispersion to coat the substrate with the dispersion to form a first coating;

Atty Docket No.: 702.107.2

- (d) drying the coated reticulated substrate;
- (e) contacting the reticulated substrate with one or more additional dispersions in succession to form one or more additional coatings;
- (f) drying the additional coating between the steps of contacting;
- (g) heating the coated reticulated substrate at a time and temperature sufficient to pyrolyze any organic components; and
- (h) sintering the coated reticulated substrate to form a ceramic or metal or composite reticulated article, wherein at least two and up to six additional coatings are provided, the composition of the first coating is different than the composition of the final coating, and one or more intermediate coatings has a composition which is a composite of the first and final coatings to form a gradient coating.

13. (Original) A process according to claim 12, wherein the first coating comprises zirconia, the final coating comprises hydroxyapatite calcium phosphate ceramic, and an intermediate coating comprises a combination of zirconia and hydroxyapatite calcium phosphate ceramic.

14. (Original) A process according to claim 1, wherein the reticulated substrate is a compliant polymeric foam.

15. (Original) A process according to claim 14, wherein the foam has at least 20 pores per inch.

16. (Original) A process according to claim 14, wherein the foam has at least 100 pores per inch.

17. (Original) A process according to claim 1, wherein excess dispersion is

Atty Docket No.: 702.107.2

removed from the reticulated substrate by squeezing and/or compressed air.

18. (Original) A process according to claim 1, wherein the binder becomes solvent-insoluble and is compliant upon drying.

19. (Original) A process according to claim 18, wherein the binder is a polyacrylate emulsion which polymerizes upon drying.

20. (Original) A process according to claim 19, wherein the binder is present in the dispersion in an amount of at least 25% by volume.

21. (Previously Presented) A process for producing a rigid reticulated article, comprising:

(a) providing a first dispersion of a metal or ceramic powder, a binder which becomes solvent-insoluble and polymerizes upon drying, and a solvent, wherein the binder is present in the dispersion in an amount of at least 25% by volume based on the entire volume of the solid components of the dispersion following drying;

(b) providing a reticulated substrate which has open, interconnected porosity;

(c) contacting the reticulated substrate with the first dispersion to coat the substrate with the dispersion;

(d) drying the coated reticulated substrate to polymerize the binder and form an insoluble deformable film on the substrate;

(e) optionally contacting the coated reticulated substrate with one or more additional dispersions to form one or more additional coatings wherein the one or more additional coatings are the same or different from each other and the first coating;

(f) drying the one or more additional coatings between the steps of

Atty Docket No.: 702.107.2

contacting;

(g) heating the coated reticulated substrate at a time and temperature sufficient to pyrolyze any organic components; and

(h) sintering the coated reticulated substrate to form a ceramic or metal or composite reticulated article.

22. (Previously Presented) A process according to claim 21, wherein the binder is a polyacrylate emulsion.

24. (Previously Presented) A process according to claim 21, wherein the binder is present in the dispersion in an amount of at least 50% by volume based on the entire volume of the solid components of the dispersion following drying.

26. (Original) A process according to claim 21, wherein the substrate is compliant.

37. (Amended) A rigid reticulated article, comprising, a body having an outer surface defining a shape having a bulk volume, interconnecting openings extending throughout said volume and opening through said surface, and struts bounding said interconnecting openings, said body ~~[[comprising]]~~ including an inner sintered ceramic or metal ~~[[or composite]]~~ material, an intermediate sintered ceramic or metal ~~[[or composite]]~~ material disposed over said inner sintered material, and an outer sintered ceramic or metal ~~[[or composite]]~~ material disposed over said intermediate sintered material, said inner sintered material having a composition different than the composition of said outer sintered material, ~~[[said intermediate sintered material having a composition which is a composite of said inner and outer sintered materials]]~~ wherein

Atty Docket No.: 702.107.2

at least one of said inner, intermediate or outer materials comprises a composite material.

39. (Original) A rigid reticulated article according to claim 37, wherein said interconnecting openings have a 3-3 connectivity.

40. (Previously Presented) A rigid reticulated article according to claim 37, wherein said article is formed by a process comprising:

- (a) providing a first dispersion of a ceramic or metal powder, a binder, and a solvent;
- (b) providing a reticulated substrate which has open, interconnected porosity;
- (c) contacting the reticulated substrate with the first dispersion to coat the substrate with the first dispersion to form a first coating;
- (d) drying the coated reticulated substrate;
- (e) contacting the coated reticulated substrate with a second dispersion of the ceramic or metal powder, a binder, a solvent, and another ceramic or metal powder to form a second coating over the first coating;
- (f) drying the second coating;
- (g) contacting the coated reticulated substrate with a third dispersion of the another ceramic or metal powder, a binder and a solvent to form a third coating over the second coating;
- (h) drying the third coating;
- (i) heating the coated reticulated substrate at a time and temperature sufficient to pyrolyze any organic components; and

Atty Docket No.: 702.107.2

(j) sintering the coated reticulated substrate to form the reticulated article.

41. (Previously Presented) A rigid reticulated article according to claim 37, wherein said article is formed by a process comprising:

- (a) providing a first dispersion of a metal or ceramic powder, a binder which becomes solvent-insoluble and flexible upon drying, and a solvent;
- (b) providing a reticulated substrate which has open, interconnected porosity;
- (c) contacting the reticulated substrate with the first dispersion to coat the substrate with the dispersion;
- (d) drying the coated reticulated substrate;
- (e) contacting the coated reticulated substrate with second and third dispersions in succession to form second and third coatings over the first coating;
- (f) drying the second and third coatings between the steps of contacting;
- (g) heating the coated reticulated substrate at a time and temperature sufficient to pyrolyze any organic components; and
- (h) sintering the coated reticulated substrate to form the reticulated article.

42. (New) A process for producing a rigid reticulated article, comprising:

- (a) providing a first dispersion comprising zirconia powder, a binder, and a solvent;
- (b) providing a reticulated substrate which has open, interconnected porosity;
- (c) contacting the reticulated substrate with the first dispersion to coat the substrate with the dispersion to form a first coating;
- (d) drying the coated reticulated substrate;



Atty Docket No.: 702.107.2

(e) contacting the coated reticulated substrate with a second dispersion comprising calcium phosphate ceramic, a binder and a solvent to form a second coating over the first coating;

(f) drying the second coating;

(g) heating the coated reticulated substrate at a time and temperature sufficient to pyrolyze any organic components; and

(h) sintering the coated reticulated substrate to form a composite reticulated article.

43. (Previously Presented) A process according to claim 42, wherein the first dispersion further comprises the calcium phosphate ceramic.

44. (Previously Presented) A process according to claim 43, wherein the calcium phosphate ceramic is hydroxyapatite calcium phosphate ceramic.

45. (Amended) A rigid reticulated article according to claim 37, wherein said inner sintered ceramic or metal or composite material ~~[[comprises]]~~ includes zirconia, and said outer sintered ceramic or metal or composite material ~~[[comprises]]~~ includes hydroxyapatite calcium phosphate.